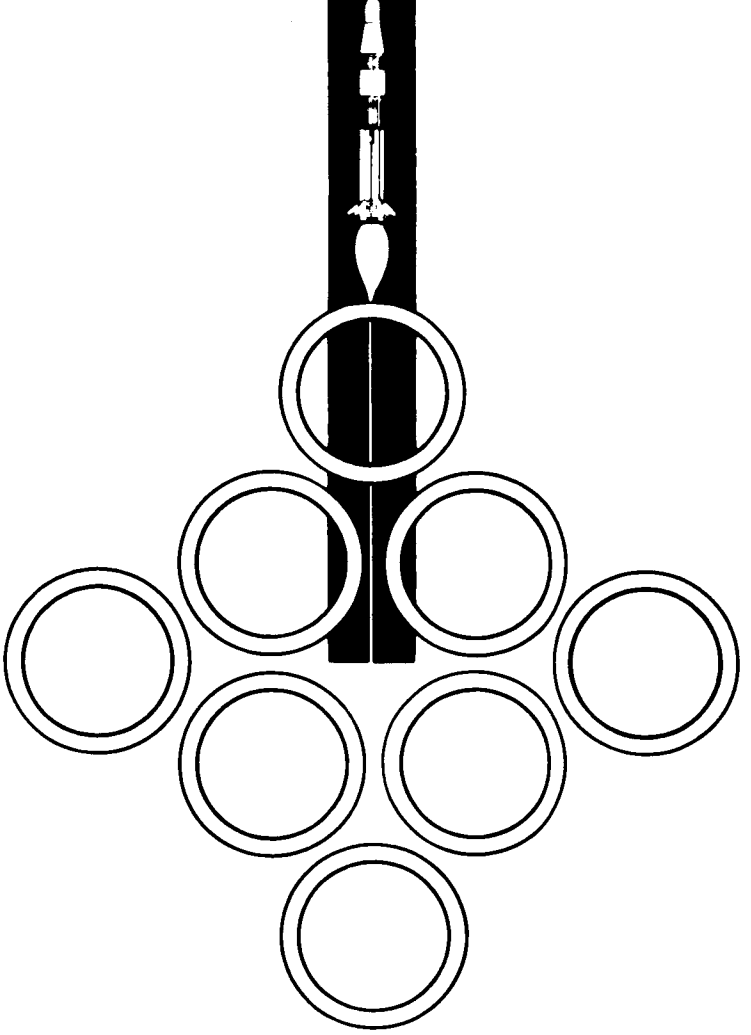

ENGINEERING DEPARTMENT

TECHNICAL REPORT

TR-RE-CCSD-FO-1093-3

January 23, 1967

SATURN IB PROGRAM

TEST REPORT
FOR

FLEXIBLE HOSE, ½-INCH ID BY 205 INCHES LONG

Titeflex Incorporated Part Number S21908-W-20500

NASA Drawing Number 75M12944 FFH-32

SPACE DIVISION CHRYSLER CORPORATION

TEST REPORT

FOR

FLEXIBLE HOSE, ½-INCH ID BY 205 INCHES LONG

Titeflex Incorporated Part Number S21908-W-20500

NASA Drawing Number 75M12944 FFH-32

ABSTRACT

This report presents the results of tests performed on one specimen of Flexible Hose 75M12944 FFH-32. The following tests were conducted:

1. Receiving Inspection
2. Proof Pressure
3. Functional
4. Low Temperature
5. High Temperature
6. Surge
7. Cycle
8. Burst

The receiving inspection (visual) test revealed black deposits on the outer end of the specimen near each connection. The overall length of the specimen was 205-½ inches (½ inch over specification requirements). However, the deposits and the increased length did not impair the performance of the specimen.

The results of the tests were satisfactory. The performance of the specimen was in accordance with specification requirements.

TEST REPORT

FOR

FLEXIBLE HOSE, $\frac{1}{2}$-INCH ID BY 205 INCHES LONG

Titeflex Incorporated Part Number S21908-W-20500

NASA Drawing Number 75M12944 FFH-32

January 23, 1967

CHRYSLER CORPORATION SPACE DIVISION - NEW ORLEANS, LOUISIANA

FOREWORD

The tests reported herein were conducted for the John F. Kennedy Space Center by Chrysler Corporation Space Division (CCSD), New Orleans, Louisiana. This document was prepared by CCSD under contract NAS8-4016, Part VII, CWO 271620.

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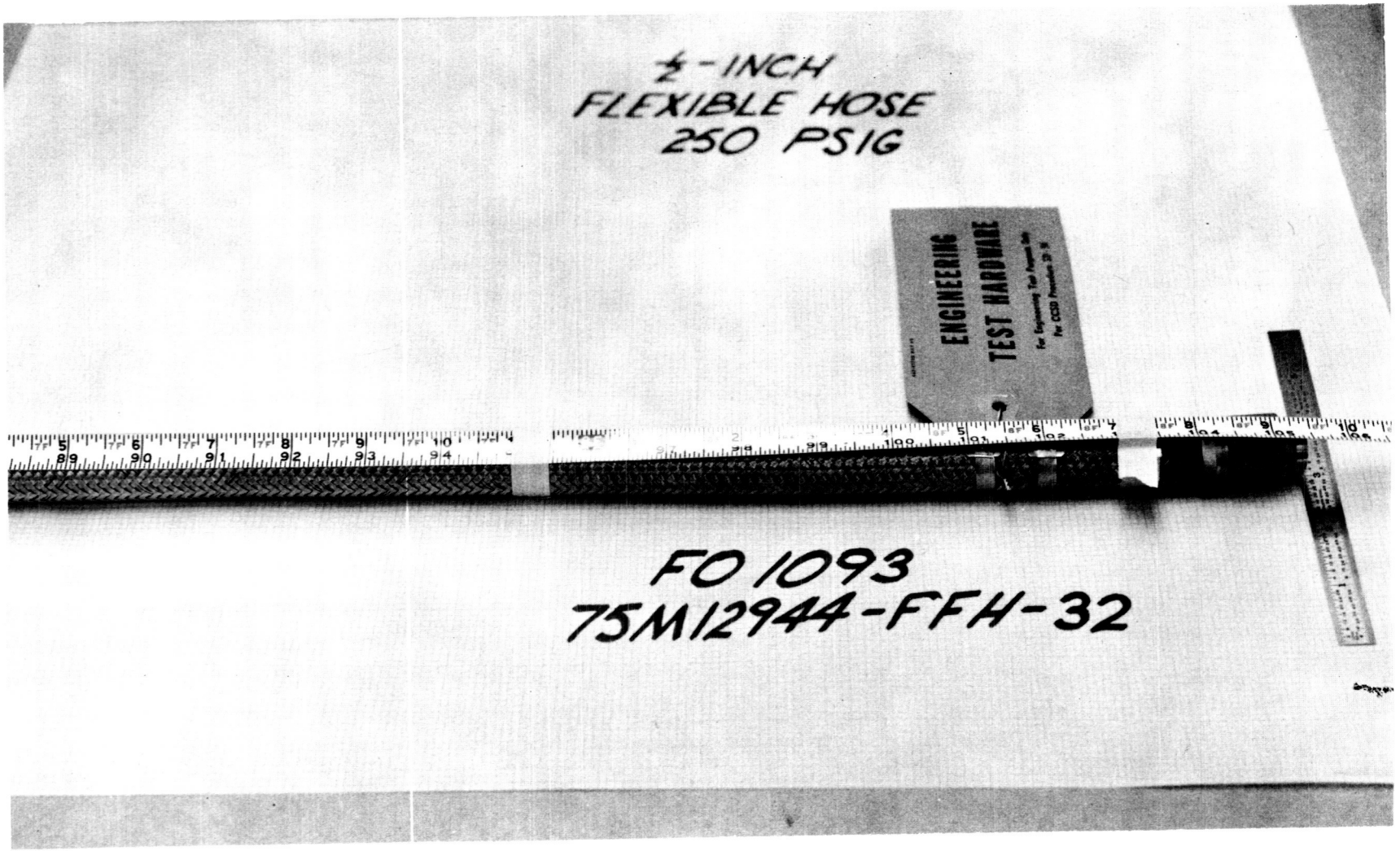


Flexible Hose 75M12944 FFH-32, 1/2-Inch ID, 250 Psig

CHECK SHEET

FOR

FLEXIBLE HOSE, $\frac{1}{2}$-INCH ID BY 205 INCHES LONG

MANUFACTURER: Titeflex Incorporated, Springfield, Mass.
MANUFACTURER'S PART NUMBER: S21908-W-20500
NASA DRAWING NUMBER: 75M12944 FFH-32
TESTING AGENCY: Chrysler Corporation Space Division, New Orleans, Louisiana
AUTHORIZING AGENCY: NASA KSC

I. FUNCTIONAL REQUIREMENTS

A.	OPERATING MEDIUM:	Gaseous hydrogen and helium
B.	OPERATING PRESSURE:	250 psig
C.	BEND RADIUS:	8 inches minimum

II. CONSTRUCTION

A.	BODY MATERIAL:	Inner tube - 321 stainless steel tubing Outer liner - 300 series stainless wire braid End connections - MS33656-8 stainless steel

III. ENVIRONMENTAL REQUIREMENTS

A.	TEMPERATURE RANGE:	+5 to +125°F

IV. LOCATION AND USE

The flexible hose is used in the electrical power system of the gaseous hydrogen piping of the spacecraft support systems.

TEST SUMMARY

FLEXIBLE HOSE 75M12944 FFH-32

Environment	Units	Operational Boundary	Test Objective	Test Results	Remarks
Receiving Inspection	1	Visual examination	To determine if specimen conforms with applicable drawings and specifications	Satisfactory	Length: 205-½ inches OD: 0.800 inch
Proof Pressure Test	1	375 psig for 15 minutes	Maintain 375 psig	Satisfactory	Maintained 375 psig. No leakage
Functional Test	1	8-inch minimum bend radius	Achieve 8-inch minimum bend radius	Satisfactory	Achieved 8-inch minimum radius
		Pressurize to 250 psig	No leakage allowed	Satisfactory	No leakage in water test
Low Temperature Test	1	Stabilize specimen at 5°F, perform a functional test at low temperature and after return to ambient conditions	Determine operating capability at low temperature and after return to ambient conditions	Satisfactory	No leakage in pressure test
High Temperature Test	1	Stabilize specimen at 125°F for 72 hours, perform a functional test at high temperature and after return to ambient conditions	Determine operating capability at high temperature and after return to ambient conditions	Satisfactory	No leakage in water and pressure test

TEST SUMMARY (Continued)

FLEXIBLE HOSE 75M12944 FFH-32

Environment	Units	Operational Boundary	Test Objective	Test Results	Remarks
Surge Test	1	250-psig pressure within 100 milliseconds for 25 cycles	Determine performance of specimen in rapidly changing pressure environment	Satisfactory	Pressurization time between 80 and 90 milliseconds
Cycle Test	1	Bend specimen from the extended position to the flexed position to the extended position. Perform 1000 cycles	Perform a functional test after 50,100,500, and 1000 cycles. Check for leakage	Satisfactory	No leakage in water test
Burst Test	1	1000 psig for 30 minutes. Increase pressure to failure	Maintain 1000 psig with no leakage for 30 minutes. Determine burst pressure	Satisfactory	1000 psig was amintained for 30 minutes with no detectable leakage. Burst pressure was 6850 psig

SECTION I

INTRODUCTION

1.1 SCOPE

This report describes the reliability tests that were performed to determine if Flexible Hose 75M12944 FFH-32 meets the operational and environmental requirements of the John F. Kennedy Space Center.

1.2 ITEM DESCRIPTION

1.2.1 One specimen of Flexible Hose 75M12944 FFH-32 was tested. The hose is 205 inches in length, with a $\frac{1}{2}$-inch inside diameter. The hose is manufactured by Titeflex Incorporated, Springfield, Mass., and serves as a flexible connection in the electrical power system of the gaseous hydrogen piping of the spacecraft support systems.

1.2.2 The hose consists of two tubes. The inner tube is $\frac{1}{2}$-inch inside diameter 321 stainless steel welded tubing, and the outer tube is 300 series stainless wire braid. The wire braid is installed over the outside of the tube.

1.3 APPLICABLE DOCUMENTS

The following documents contain the test requirements for Flexible Hose 75M12944 FFH-32:

a. KSC-STD-164 (D), Standard Environmental Test Methods for Ground Support Equipment Installations at Cape Kennedy

b. NASA Drawing 75M12944 FFH-32

c. Cleaning Standard MSFC-STD-164

d. Test Plan CCSD-FO-1093-1F

e. Test Procedure FO-1093-2F

SECTION II

RECEIVING INSPECTION

2.1 TEST REQUIREMENTS

The specimen shall be visually and dimensionally inspected for conformance with the applicable specifications prior to testing.

2.2 TEST PROCEDURE

A visual and dimensional inspection was performed to determine compliance with NASA drawing 75M12944 FFH-32 and the applicable vendor drawing to the extent possible without disassembly of the test specimen. At the same time the test specimen was also inspected for poor workmanship and manufacturing defects.

2.3 TEST RESULTS

The receiving inspection (visual) test revealed black deposits on the outer end of the specimen near each connection. The overall length of the specimen was 205-$\frac{1}{2}$ inches ($\frac{1}{2}$ inch over specification requirements). However, the deposits and the increased length did not impair the performance of the specimen.

2.4 TEST DATA

The data determined by the inspection are as follow:

a. Length (overall): 205-$\frac{1}{2}$ inches

b. Diameter (mean outside): 0.800 inch

c. End Connections MS 33656

Figure 2-1. Receiving Inspection

SECTION III

PROOF PRESSURE TEST

3.1 TEST REQUIREMENTS

3.1.1 The test specimen shall be hydrostatically pressurized to 375 psig for a period of 15 minutes.

3.1.2 The test specimen shall be inspected for leakage and distortion.

3.2 TEST PROCEDURE

3.2.1 The test setup was assembled as shown in figures 3-1 and 3-2 using the equipment listed in table 3-1. All hand valves were closed.

3.2.2 Hand valve 4 and pressure cap 7 were opened. Hand pump 3 was operated to purge the system and specimen of air.

3.2.3 Pressure cap 7 was closed and the specimen was pressurized to 375 psig using hand pump 3. The pressure indicated on gage 5 was monitored.

3.2.4 Hand valve 4 was closed and the pressure was maintained for 15 minutes.

3.2.5 The specimen was checked for leakage during this 15-minute period by monitoring gage 5 for an indication of a pressure drop at the specimen. The initial and final pressures were recorded.

3.2.6 Valve 6 was opened and the system and specimen were depressurized.

3.2.7 The specimen was removed from the test setup and inspected for distortion.

3.3 TEST RESULTS

There was no leakage of the test specimen, and no distortion was evident.

3.4 TEST DATA

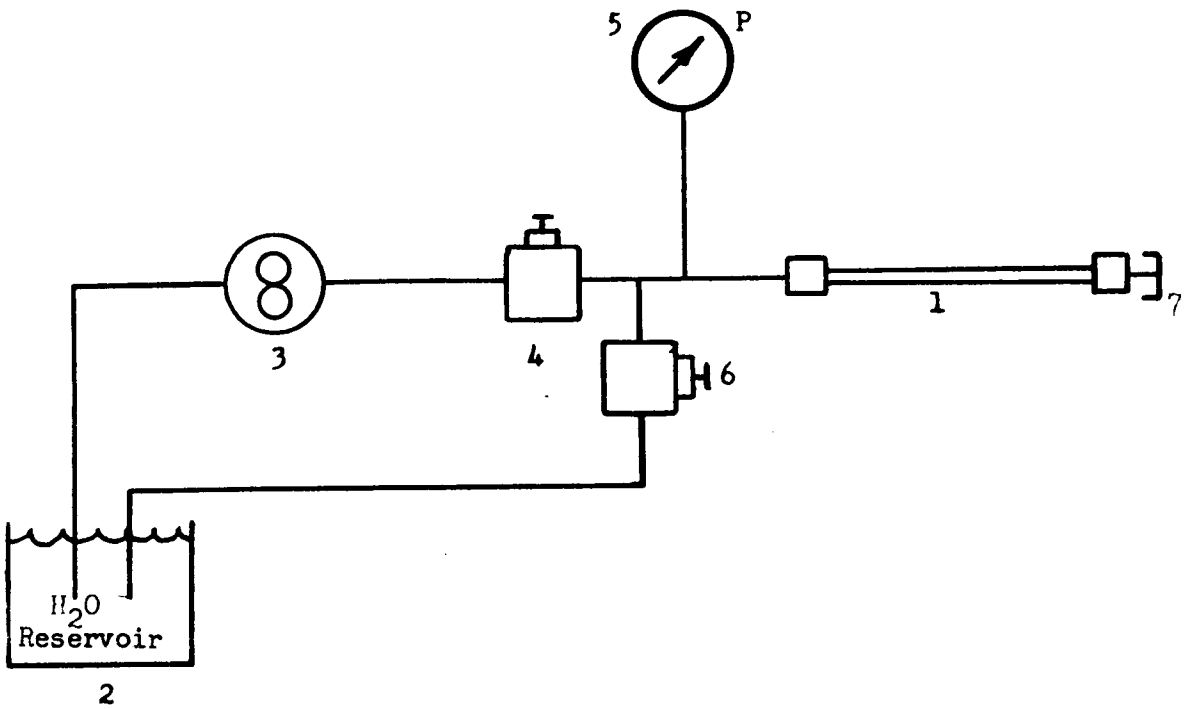
The test data presented in table 3-2 were recorded during the test.

Table 3-1. Proof Pressure and Burst Test Equipment List

Item No.	Item	Manufacturer	Model/ Part No.	Serial No.	Remarks
1	Test Specimen	Titeflex Incorporated	S21908-W-20500	N/A	Flexible hose, $\frac{1}{2}$-inch ID
2	Reservoir	CCSD	N/A	N/A	H_2O
3	Pump	Sprague Engineering Corp.	N/A	300-16-64	5000-psig
4	Hand Valve	Aminco	44-13106	--	$\frac{1}{4}$-inch
5	Pressure Gage	Heise	N/A	014219	0-to 5000-psig $\pm$1.0% FS accuracy; Cal date 6/14/66
6	Hand Valve	Aminco	44-13106	N/A	$\frac{1}{4}$-inch
7	Pressure Cap	N/A	N/A	N/A	$\frac{1}{2}$-inch AN

Table 3-2. Proof Pressure Test Data

Pressure	375 psig for 15 minutes
Leakage	None
Distortion	None



Note: All lines are 1/4 inch.
Refer to table 3-1 for item identification

Figure 3-1. Proof Pressure and Burst Test Schematic

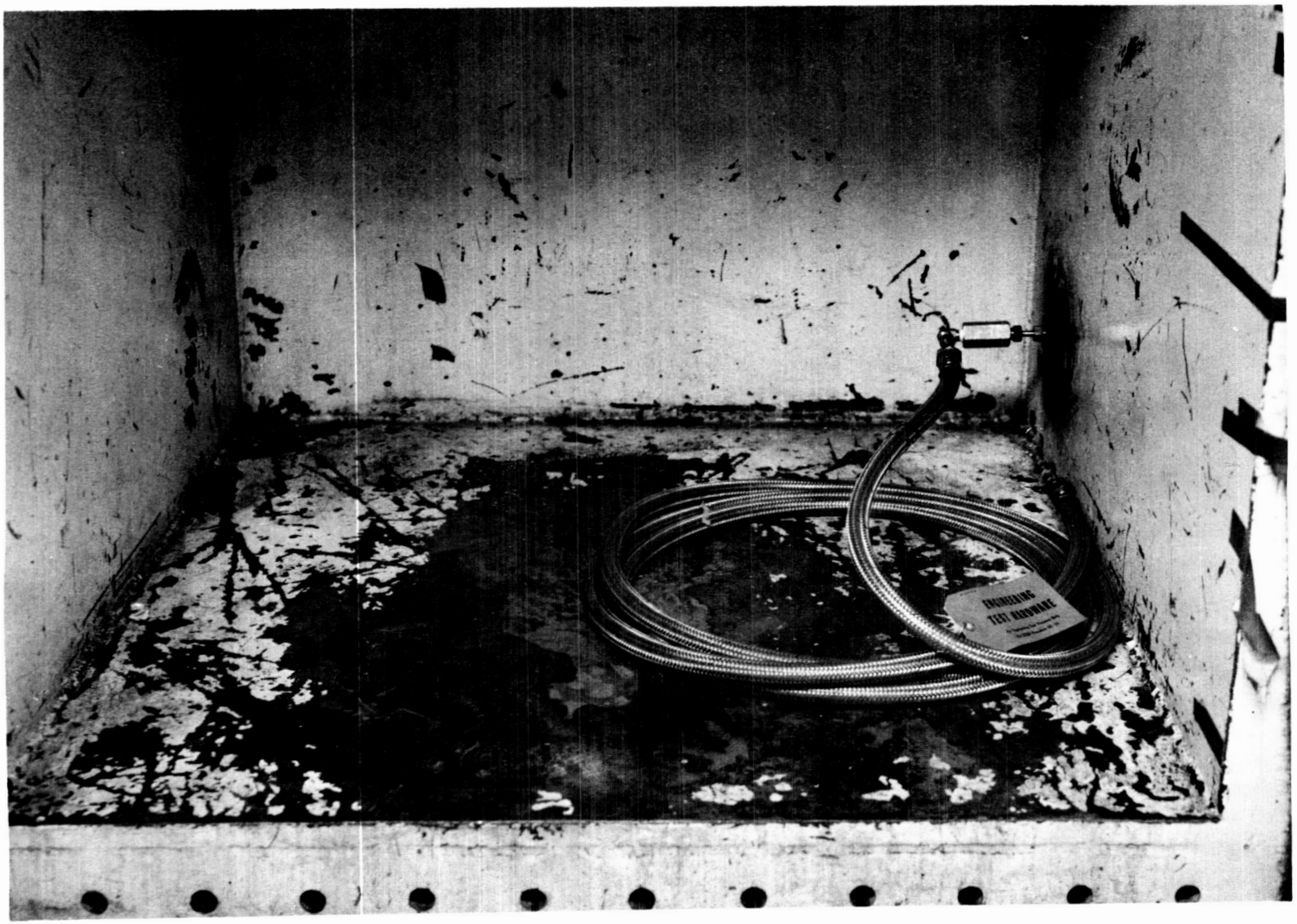


Figure 3-2. Proof Pressure and Burst Test Setup

SECTION IV

FUNCTIONAL TEST

4.1 TEST REQUIREMENTS

4.1.1 One end of the test specimen shall be bent to an angle of 90 degrees. A minimum bend radius of 8 inches shall be confirmed.

4.1.2 The test specimen shall be pressurized with GHe to 250 psig while in the flex position described in 4.1.1. The test specimen shall be checked for leakage. No leakage is allowed.

4.1.3 The test specimen shall be depressurized, then returned to the extended position.

4.2 TEST PROCEDURE

4.2.1 The test setup was assembled as shown in figure 4-1 installation A, using the equipment listed in table 4-1. All valves were closed.

4.2.2 The test specimen was bent 90 degrees from the extended position shown in figure 4-1 installation A to the flexed position shown in figure 4-1 installation B. A minimum bend radius of 8 inches was confirmed. Figure 4-2 shows the hose in the flexed position.

4.2.3 Test chamber 11 was filled with water.

4.2.4 Valve 5 was opened and the inlet port of regulator 7 was pressurized to 3500 psig with GHe from pressure source 2. The pressure was monitored on gage 6.

4.2.5 Hand valve 8 was opened. Regulator 7 was adjusted to pressurize the specimen to 250 psig for 5 minutes. The pressure was monitored on gage 9.

4.2.6 The specimen was checked for leakage by monitoring test chamber 11 for the presence of bubbles.

4.2.7 The water was removed from test chamber 11.

4.2.8 Hand valve 5 was closed and the system and specimen were vented to zero psig by closing regulator 7 and opening hand valve 10. The specimen was then returned to the extended position.

4.3 TEST RESULTS

4.3.1 A minimum bend radius of 8 inches was achieved as specified in 4.1.1.

4.3.2 No leakage was detected during the functional test.

4.4 TEST DATA

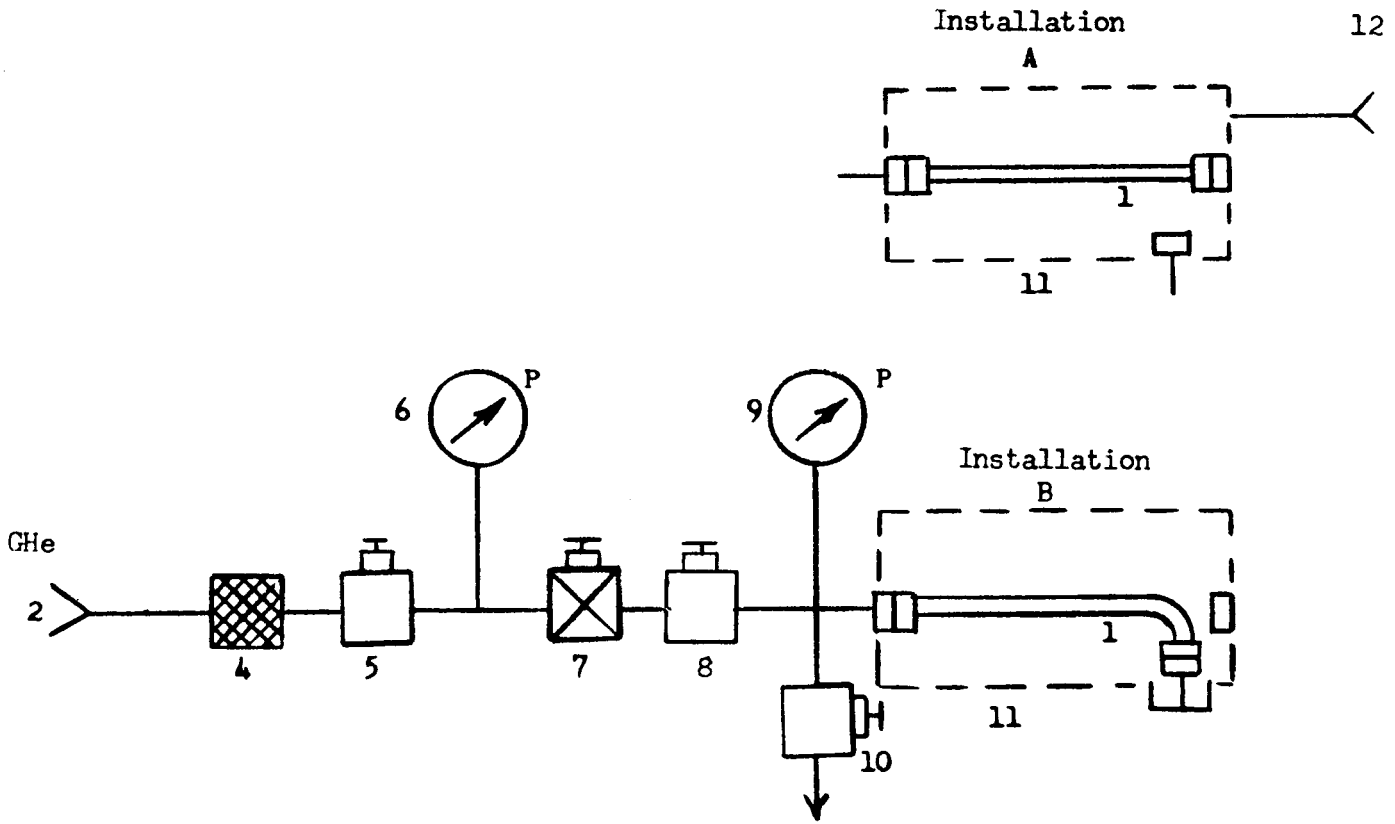
Data recorded during the functional test are presented in table 4-2.

Table 4-1. Functional Test Equipment List

Item No.	Item	Manufacturer	Model/ Part No.	Serial No.	Remarks
1	Test Specimen	Titeflex Incorporated	S21908-W-20500	N/A	Flexible hose, ½-inch ID
2	GHe Pressure Source	N/A	N/A	N/A	0-to 3500-psig
4	Filter	Oxweld	71233	N/A	10-micron
5	Hand Valve	Robbins Aviation, Inc.	SSNA-250-4T	N/A	¼-inch
6	Pressure Gage	Union Carbide	BU2581	23771-1	0-to 5000-psig ±1.0% FS accuracy; Cal. date 6/14/66
7	Regulator	Oxweld	R8956	641	
8	Hand Valve	Robbins Aviation, Inc.	SSNA-250 4T		¼-inch
9	Pressure Gage	Duragage	B	95-1041B	0-to 500-psig ±1.0% FS accuracy; Cal. date 6/14/66
10	Hand Valve	Robbins Aviation, Inc.	SSNA-250-4T	N/A	¼-inch
11	Test Chamber	CCSD	N/A	N/A	
12	Temperature Source	Thermotron, Inc.	200507	6219	-100 to +400°F (Temperature tests only)

Table 4-2. Functional Test Data

Trial No.	Position	Bend Radius (inches)	Pressure (psig)	Time (minutes)	Leakage	Temperature (°F)
1	Extended	--	0	--	--	+80
	Flexed	8	250	5	None	+80
2	Extended	--	0	--	--	+80
	Flexed	8	250	5	None	+80
3	Extended	--	0	--	--	+80
	Flexed	8	250	5	None	+80



Note: All lines are 1/4 inch.
Refer to table 4-1 for item identification.

Figure 4-1. Functional Test Schematic

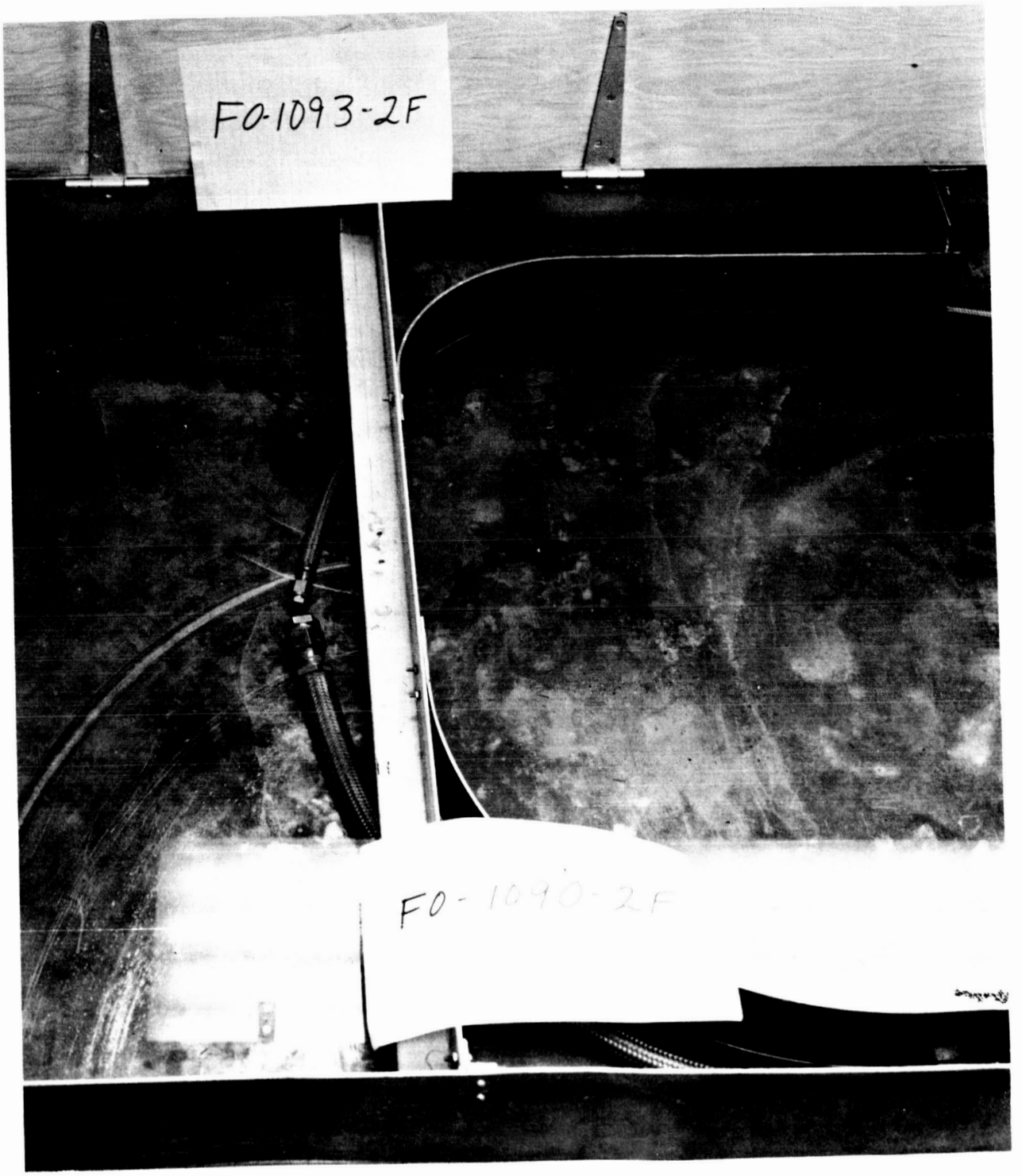


Figure 4-2. Functional Test Setup

SECTION V

LOW TEMPERATURE TEST

5.1 TEST REQUIREMENTS

5.1.1 The test specimen shall be subjected to a low temperature test of 5 (+0, -4)°F to determine whether the environment causes degradation or deformation.

5.1.2 A functional test as prescribed in section IV shall be performed during this test with the following exceptions. The specimen will not be submerged in water. Leakage will be monitored by noting pressure drop.

5.2 TEST PROCEDURE

5.2.1 The test specimen was placed in a low temperature chamber and installed as shown in figure 4-1 installation A using the equipment listed in table 4-1. Figure 5-1 also shows the test setup.

5.2.2 The chamber was controlled to the specified test conditions, and a relative humidity between 60 and 90 per cent was maintained.

5.2.3 A functional test (refer to paragraph 5.1.2) was performed when temperature stabilization was obtained.

5.2.4 The chamber temperature was returned to ambient conditions upon completion of the functional test.

5.2.5 The test specimen was visually inspected and functionally tested within 1 hour following the return to ambient conditions.

5.3 TEST RESULTS

Results of the low temperature test and associated functional tests were satisfactory. No leakage was detected.

5.4 TEST DATA

Test data recorded during and after the low temperature test are presented in tables 5-1 and 5-2, respectively.

Table 5-1. Functional Test Data Obtained During Low Temperature Test

Trial No.	Position	Bend Radius (inches)	Pressure (psig)	Time (minutes)	Leakage	Temperature (°F)
1	Extended	—	0	—	—	+5
	Flexed	8	250	5	None	+5
2	Extended	—	0	—	—	+5
	Flexed	8	250	5	None	+5
3	Extended	—	0	—	--	+5
	Flexed	8	250	5	None	+5

Table 5-2. Functional Test Data Obtained After Low Temperature Test

Trial No.	Position	Bend Radius (inches)	Pressure (psig)	Time (minutes)	Leakage	Temperature (°F)
1	Extended	--	0	--	--	+80
	Flexed	8	250	5	None	+80
2	Extended	--	0	--	--	+80
	Flexed	8	250	5	None	+80
3	Extended	--	0	--	--	+80
	Flexed	8	250	5	None	+80

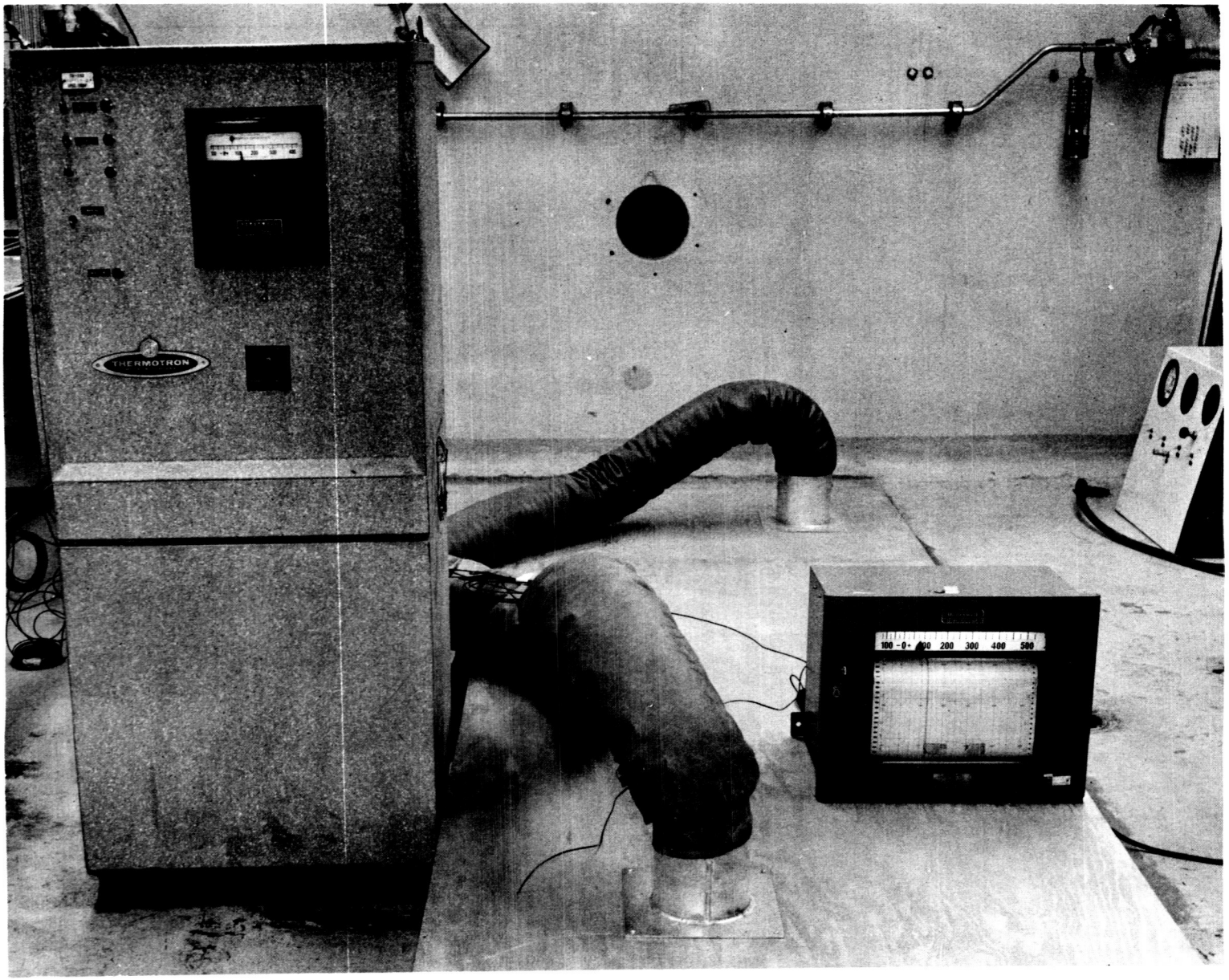


Figure 5-1. Low and High Temperature Test Setup

SECTION VI

HIGH TEMPERATURE TEST

6.1 TEST REQUIREMENTS

6.1.1 The test specimen shall be subjected to a high temperature test of 125 (+4, -0)°F to determine whether the environment causes degradation or deformation.

6.1.2 A functional test shall be performed during this test.

6.2 TEST PROCEDURE

6.2.1 The test specimen was placed in a high temperature chamber and installed as shown in figure 4-1 installation A using the equipment listed in table 4-1. Figure 5-1 also shows the test setup.

6.2.2 The chamber was controlled to the specified test conditions, and a relative humidity of 20 (±5) per cent was maintained.

6.2.3 A temperature of 125 (+4, -0)°F was maintained for a period of 72 (+2, -0) hours.

6.2.4 A functional test was conducted while the chamber temperature was maintained.

6.2.5 The chamber temperature was returned to ambient conditions upon completion of the functional test.

6.2.6 The specimen was visually inspected and functionally tested within 1 hour following the establishment of ambient conditions.

6.3 TEST RESULTS

The results of the high temperature test and associated functional tests were satisfactory. No leakage was detected.

6.4 TEST DATA

Data recorded during and after high temperature testing are presented in tables 6-1 and 6-2, respectively.

Table 6-1. Functional Test Data Obtained During High Temperature Test

Trial No.	Position	Bend Radius (inches)	Pressure (psig)	Time (minutes)	Leakage	Temperature (°F)
1	Extended	—	0	—	—	+125
	Flexed	8	250	5	None	+125
2	Extended	—	0	—	—	+125
	Flexed	8	250	5	None	+125
3	Extended	—	0	—	—	+125
	Flexed	8	250	5	None	+125

Table 6-2. Functional Test Data Obtained After High Temperature Test

Trial No.	Position	Bend Radius (inches)	Pressure (psig)	Time (minutes)	Leakage	Temperature (°F)
1	Extended	—	0	—	—	+80
	Flexed	8	250	5	None	+80
2	Extended	—	0	—	—	+80
	Flexed	8	250	5	None	+80
3	Extended	—	0	—	—	+80
	Flexed	8	250	5	None	+80

SECTION VII

SURGE TEST

7.1 TEST REQUIREMENTS

7.1.1 The test specimen shall be subjected to 25 pressure surge cycles while placed in the flexed position described in section IV.

7.1.2 Each pressure surge shall be a pressure increase from zero to 250 psig in 100 milliseconds. This shall constitute 1 cycle. The test medium shall be GHe.

7.2 TEST PROCEDURE

7.2.1 The test setup was assembled as shown in figure 7-1 and 7-2 using the equipment listed in table 7-1. All hand valves were closed.

7.2.2 The specimen was placed in the flexed position described in 4.2.2.

7.2.3 Regulator 7 was adjusted for zero outlet pressure.

7.2.4 Hand valve 5 was opened and the inlet port of regulator 7 was pressurized to 3500 psig with GHe from pressure source 2. The pressure was monitored on gage 6.

7.2.5 Solenoid valve 9 was actuated. The specimen was pressurized to 250 psig by adjusting regulator 7. The pressure was monitored with transducer 10.

7.2.6 Solenoid valve 9 was deactuated and the specimen was vented to zero psig.

7.2.7 Solenoid valve 9 was actuated and the specimen was pressurized to 250 psig. The pressure was monitored with transducer 10. Solenoid valve 9 was deactuated and the specimen was vented to zero psig.

7.2.8 The procedure described in 7.2.7 was repeated in an attempt to obtain a pressurization rate of zero to 250 psig in 100 milliseconds.

7.2.9 Twenty-five surge cycles as described in 7.2.7 were performed.

7.3 TEST RESULTS

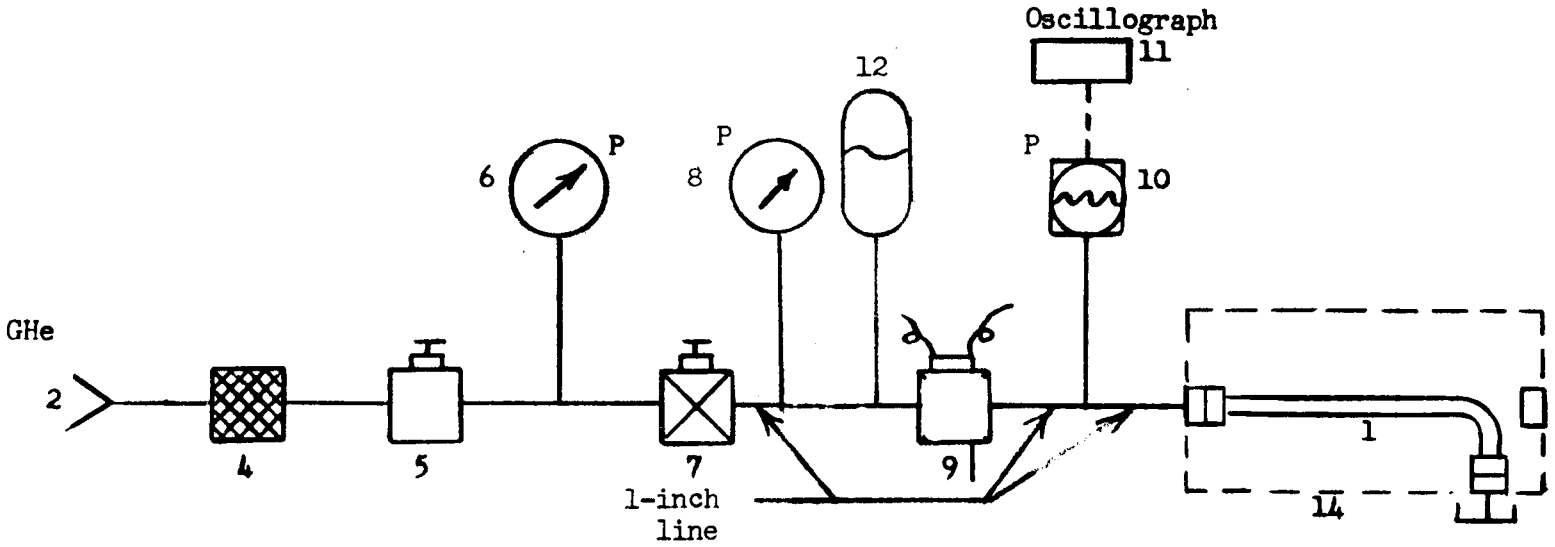
The pressurization rate for the 25 cycles ranged between 80 and 90 milliseconds.

7.4 TEST DATA

A typical surge test waveform is shown in figure 7-3.

Table 7-1. Surge Test Equipment List

Item No.	Item	Manufacturer	Model/ Part No.	Serial No.	Remarks
1	Test Specimen	Titeflex Incorporated	S21908-20500	N/A	Flexible hose, ½-inch ID
2	GHe Pressure Source	Air Reduction	N/A	N/A	3500-psig
3	(Not applicable)				
4	Filter	Oxweld	77233	N/A	10-micron
5	Hand Valve	Air Reduction	N/A	N/A	1-inch
6	Pressure Gage	Union Carbide	BU2581	23771-1	0-to 5000-psig ±1.0% FS accuracy; Cal date 6/14/66
7	Regulator	Oxweld	R-8956	641	0-to 4000-psig inlet 0-to 4000-psig outlet
8	Pressure gage	Ashcroft	N/A	95-1373	0-to 500-psig ±1.0% FS accuracy; Cal. date 6/14/66
9	Solenoid Valve	Southwestern Valve	20-4274-1	N/A	1-inch, 3-way normally closed
10	Pressure Transducer	Consolidated Electrodynamics Corp.	N/A	95-1324 B	±0.5% accuracy
11	Oscillograph	Consolidated Electrodynamics Corp.	I5-124	5224	Recording
12	Accumulator	American Bosch	ACB300085	N/A	1-inch
14	Test Chamber	CCSD	N/A	N/A	



Note: All lines are 1/4 inch unless indicated otherwise.
Refer to table 7-1 for item identification

Figure 7-1. Surge Test Schematic

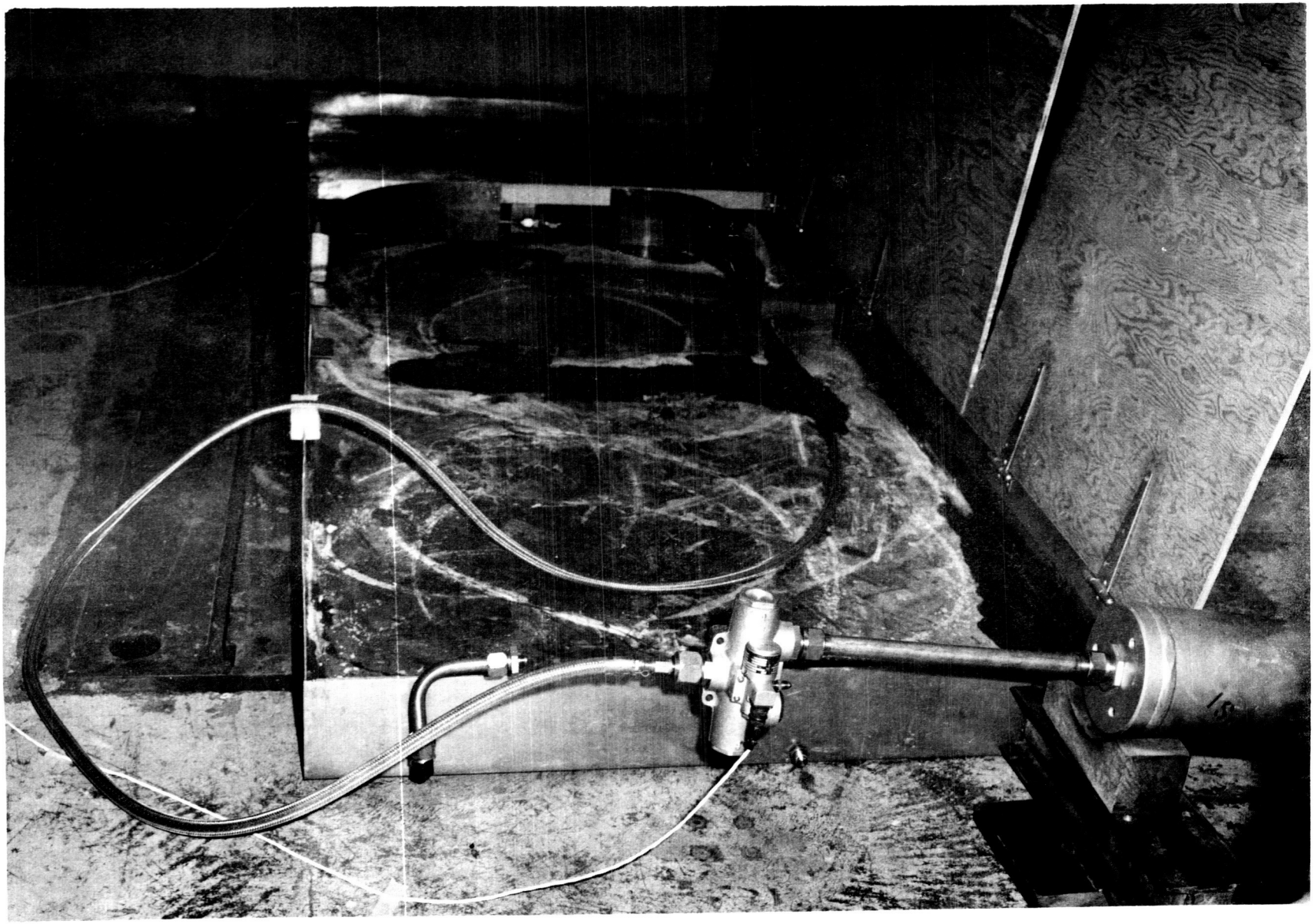


Figure 7-2. Surge Test Setup

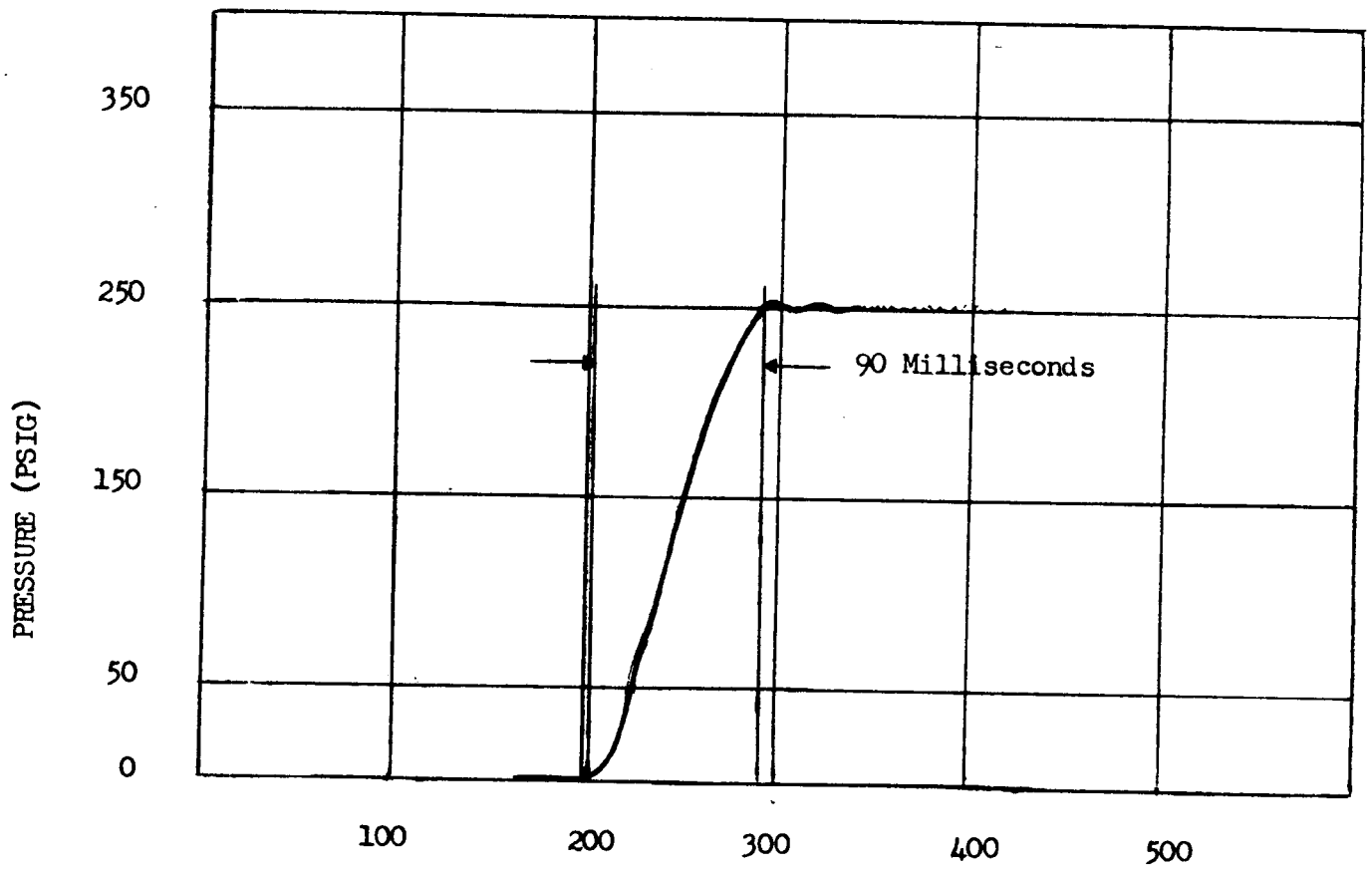


Figure 7-3. Typical Surge Waveform

SECTION VIII

CYCLE TEST

8.1 TEST REQUIREMENTS

8.1.1 The test specimen shall be subjected to 1000 cycles.

8.1.2 Each cycle shall consist of moving the specimen from the extended position to the flexed position and back to the extended position.

8.1.3 A functional test as specified in section IV shall be performed following the completion of 50, 100, 500, and 1000 cycles.

8.2 TEST PROCEDURE

8.2.1 The test setup was assembled as shown in figure 4-1 installation A using the equipment listed in table 4-1.

8.2.2 The specimen was bent 90 degrees from the extended position shown in figure 4-1 installation A to the flexed position shown in figure 4-1 installation B and then back to the extended position. This constitutes 1 cycle. One-thousand cycles were performed.

8.2.3 A functional test as described in section IV was performed after 50, 100, 500, and 1000 cycles.

8.3 TEST RESULTS

The results of the cycle test and associated functional tests were satisfactory. No leakage was detected.

8.4 TEST DATA

Data recorded during the cycle test are presented in tables 8-1, 8-2, 8-3, and 8-4.

Table 8-1. Functional Test Data Obtained After 50 Cycles

Trial No.	Position	Bend Radius (inches)	Pressure (psig)	Time (minutes)	Leakage	Temperature (°F)
1	Extended	—	0	—	—	+80
	Flexed	8	250	5	None	+80
2	Extended	—	0	—	—	+80
	Flexed	8	250	5	None	+80
3	Extended	—	0	—	—	+80
	Flexed	8	250	5	None	+80

Table 8-2. Functional Test Data Obtained After 100 Cycles

Trial No.	Position	Bend Radius (inches)	Pressure (psig)	Time (minutes)	Leakage	Temperature (°F)
1	Extended	—	0	—	—	+80
	Flexed	8	250	5	None	+80
2	Extended	—	0	—	—	+80
	Flexed	8	250	5	None	+80
3	Extended	—	0	—	—	+80
	Flexed	8	250	5	None	+80

Table 8-3. Functional Test Data Obtained After 500 Cycles

Trial No.	Position	Bend Radius (inches)	Pressure (psig)	Time (minutes)	Leakage	Temperature (°F)
1	Extended	--	0	--	--	+80
	Flexed	8	250	5	None	+80
2	Extended	--	0	--	--	+80
	Flexed	8	250	5	None	+80
3	Extended	--	0	--	--	+80
	Flexed	8	250	5	None	+80

Table 8-4. Functional Test Data Obtained After 1000 Cycles

Trial No.	Position	Bend Radius (inches)	Pressure (psig)	Time (minutes)	Leakage	Temperature (°F)
1	Extended	—	0	—	—	+80
	Flexed	8	250	5	None	+80
2	Extended	—	0	—	—	+80
	Flexed	8	250	5	None	+80
3	Extended	—	0	—	—	+80
	Flexed	8	250	5	None	+80

SECTION IX

BURST TEST

9.1 TEST REQUIREMENTS

9.1.1 The test specimen shall be subjected to a hydrostatic pressure of 1000 psig for a period of 30 minutes.

9.1.2 The test specimen shall be checked for leakage and distortion.

9.1.3 The pressure shall be increased until failure (rupture) occurs. The location of failure shall be recorded and photographed, and the pressure at failure shall be recorded.

9.2 TEST PROCEDURE

9.2.1 The test setup was assembled as shown in figures 3-1 and 3-2 using the equipment listed in table 3-1. All hand valves were closed.

9.2.2 Hand valve 4 and pressure cap 7 were opened. Hand pump 3 was operated to purge the system and specimen of air.

9.2.3 Pressure cap 7 was closed and the specimen was pressurized to 1000 psig. The pressure was monitored on gage 5.

9.2.4 Valve 4 was closed and the pressure was maintained for 30 minutes.

9.2.5 The test described in 3.2.5 and 3.2.6 was performed.

9.2.6 The specimen was inspected for distortion. All data were recorded.

9.2.7 Valve 4 was opened and pump 3 was operated until specimen rupture occurred. The location of the failure and the pressure at failure were recorded. Figure 9-1 shows the failure.

9.3 TEST RESULTS

9.3.1 The test specimen was subjected to a hydrostatic pressure of 1000 psig for a period of 30 minutes. There was no leakage of the test specimen and no distortion was evident.

9.3.2 Specimen failure occurred at 6850 psig. The failure was caused by separation of an end fitting and collar from the hose. This end of the hose was flexed in previous tests.

9.4 TEST DATA

Data recorded during the burst test are presented in table 9-1.

Table 9-1. Burst Test Data

Pressure	1000 psig for 30 minutes
Leakage	None
Burst Pressure	6850 psig

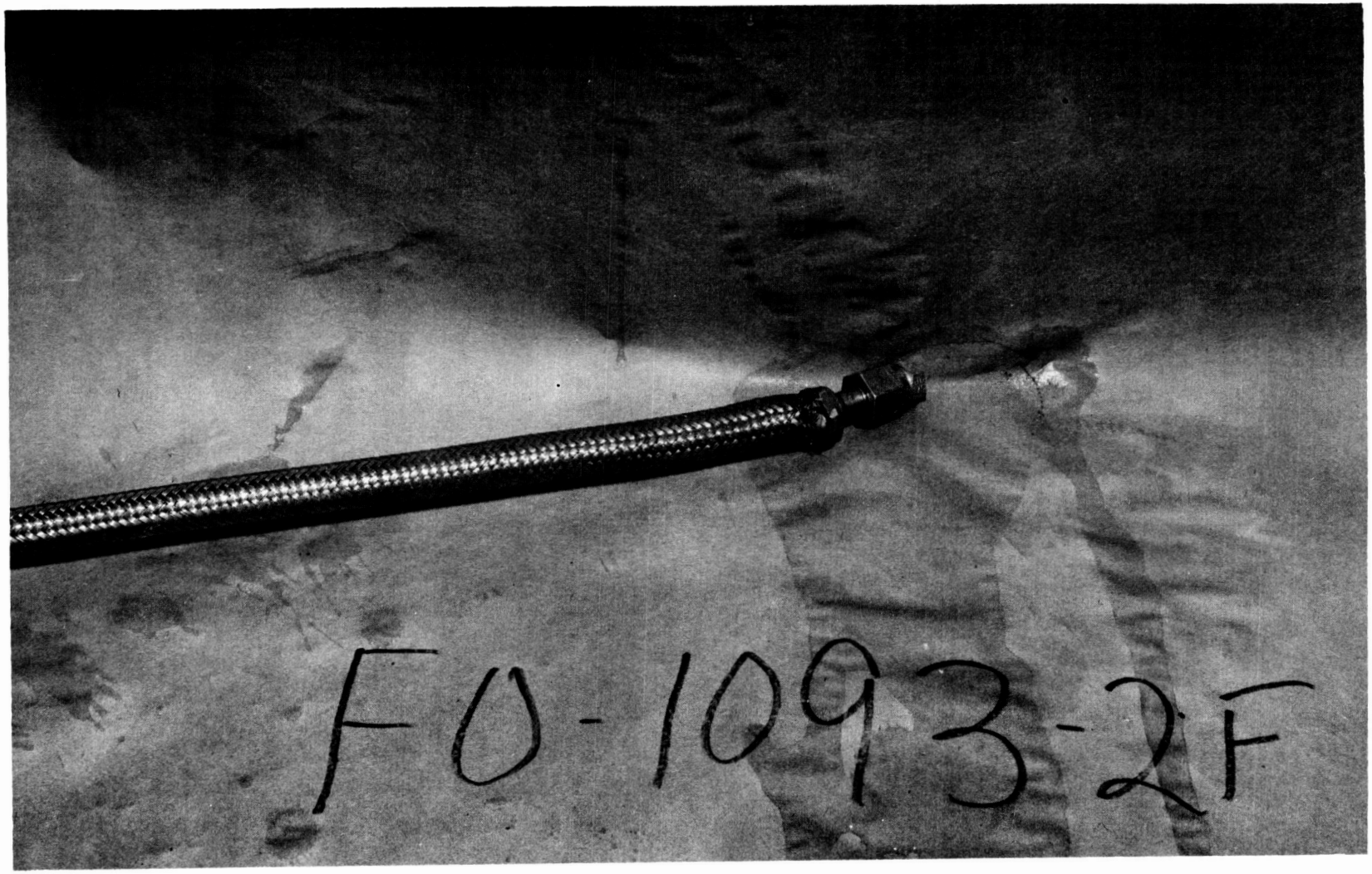


Figure 9-1. Burst Test Failure

APPROVAL

TEST REPORT

FOR

FLEXIBLE HOSE, ½-INCH ID BY 205 INCHES LONG

Titeflex Incorporated Part Number 321908-8-20500

NASA Drawing Number 75M12944 FFH-32

SUBMITTED BY:

T.W. Sparks
Test and Evaluation Section

APPROVALS

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Engineering Department

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